Preparing Your Article for the ASP Conference Series[*]

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Abstract. This is a thorough revision of the document *Astronomical Society of the Pacific Conference Series—Instructions for Authors Using LaTeX 2ε Markup*. The author instructions have been entirely restructured and now incorporate instructions on preparing the BibTeX database of bibliographic references that will be needed by the editors for producing the author reference lists in the final edited version of the volume. Authors and editors alike are urged to use this and no other system, since it will result in a lessened burden on both. A further new feature provided is the use of tables that extend beyond a single page.

1. General Introduction

In order to ensure that papers received for publication from different authors are consistent in format, style, and quality, authors are required to typeset their manuscripts[1] exactly according to the following instructions. The editors will modify the electronic manuscripts as necessary to ensure that they conform to these standards in order to produce a compliant LaTeX book to be subsequently converted at the Astronomical Society of the Pacific (ASP) Conference Series office into a PDF file for electronic publishing.

We hope that you will find that all the aspects of LaTeX 2ε necessary for the completion of your article will be covered in this manual; however, those readers seeking further information on LaTeX 2ε are referred to the excellent book by Kopka & Daly (1999).

Please also review the online ASPCS authors' information.[2] This web page includes all the author templates and instructions in a searchable PDF as well as important information regarding copyright issues, technical resources, writing helps, a preflight tools, and a final checklist.

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[*]Revised January 2009. Please note that if there is a conference attendee list complete with addresses, the full address for each author is not required.

[1]Although the term *manuscript* has long lost its etymological meaning of "handwritten script", it is retained here in the meaning it has had for many years in publishing, i.e., a document compiled by an author for publication, using whatever means.

[2]http://www.aspbooks.org/author_information/.

2.   Cautionary Note

> ***Important:*** Proceedings volumes contracted from January 2010 on-
> wards must be prepared using the 2010 macros and instructions. The
> ASP Conference Series will not provide support to authors or editors
> using earlier versions, which must now be considered obsolete.

These author instructions should be used in combination with the article template
(`aspauthor.tex`), which will correctly format your article in preparation for editing,
and the bibliographic database template (`author.bib`). You, as the author, need to
provide the editors with the following, correctly formatted, information:

- The names of all the authors of the paper as you would want them cited

- The affiliations and addresses of all the authors

- An abstract of the paper for inclusion in ADS

- The complete text of the paper and any tables referred to therein

- A full bibliographic database for all the references cited in the paper

- All the illustrations, of a quality suitable for printing (See Sect. 5 on page 26),
  referred to in the text

By now, the use of LaTeX 2_ε should be fairly universal. If you are using an earlier
version of LaTeX, then you will need to upgrade this to LaTeX 2_ε otherwise you may
experience problems in using the ASP Conference Series style file (`asp2010.sty`). If
you have problems of this sort, consult with your local software manager.

3.   The Text

In order to complete your article you will need the following three files:[3]

- The ASP Conference Series style file (`asp2010.sty`)

- The author template (`aspauthor.tex`)

- The author bibliographic database file (`author.bib`)

3.1.   The Template File

The template file consists of six parts:

1. The preamble

---

[3]All downloadable from `http://www.aspbooks.org/instr_temp_mac/`.

2. The title of the article

3. Author information

4. The abstract

5. The main text of the article

6. The bibliography

3.1.1. The Preamble

This part of the template calls on various packages and resets counters to zero. Do not alter anything in this part of the template except for inserting author last names and a shortened title in the `\markboth{}{}` command.

> ***Important Note:*** Do *not* define any commands of your own for any reason (i.e., no `def` or `newcommand` statements). If you do so, the volume editors will need to remove them all in order to get the book macro to work properly.

If you feel that you need special commands, clear these with the editors, who will need to include any such command definitions in the preamble of the customized book macro for the volume, to which you will not have access.

3.1.2. The Title of the Article

Open the author template file and look for the command `\title{}`. Now enter the title of your article inside the braces.

3.1.3. Appending a Footnote to the Title

There is rarely any justification for appending a footnote to the title of an article. *Never* use a title footnote for acknowledgments (these belong exclusively in the acknowledgments section and should not appear elsewhere in the article). If, in exceptional circumstances, a footnote to the title is warranted (do consult with the editors first), then the footnote symbol (an asterisk) should be appended at the end of the title with the command `\footnotemark` (no argument is required for this command). The text of the footnote should then be given before the `\begin{abstract}` command using the command `\titlefootnote{}`.

To append an asterisked footnote to the title uncomment the line

```
%\allowtitlefootnote
```

Now scroll to just before the abstract and uncomment the line

```
%\titlefootnote{}
```

and insert the footnote text between the braces. The footnotes will thenceforth appear in arabic numerals starting from "1". This article has a title footnote by way of example.

3.1.4.   Author Names and Affiliations

The new author template allows only one format for author names and affiliations. In the author template the author names and affiliations are written in the nested commands

```
\author{
\affil{}
}
```

It is the ASP style to not allow a line break to split a name or address component. To assure that a full name remains together a suitably placed line break (double slash "\\") can be used between after the name of an author that should appear at the end of a line, or a tilde character ("~") can be placed in the space between the first and last name.

How the author names and affilliation commands are used is best illustrated with the aid of examples.

Single Author, Single Affiliation

```
\author{Joseph~Silk
\affil{Department of Physics, University of Oxford, Oxford OX1 3RH, UK}
}
```

produces

Joseph Silk
Department of Physics, University of Oxford, Oxford OX1 3RH, UK

One Author, Multiple Affiliations

```
\author{Linda~J.~Smith$^{1,2}$
\affil{$^1$Space Telescope Science Institute and European Space Agency,\\
3700 San Martin Drive, Baltimore, MD 21218, USA\\
$^2$Department of Physics and Astronomy, University College London,\\
Gower St., London WC1E 6BT, UK}
}
```

will give

Linda J. Smith[1,2]
[1]*Space Telescope Science Institute and European Space Agency,*
3700 San Martin Drive, Baltimore, MD 21218, USA
[2]*Department of Physics and Astronomy, University College London,*

Gower St., London WC1E 6BT, UK

Multiple Authors, One Affiliation

Where more than one author is involved, the last two authors must be separated by "and" (not an ampersand). For three or more authors, a serial comma must be used after the penultimate author.

```
\author{Kartik~Sheth, Lori~Spalsbury, Nick~Scoville,\\
and~the~COSMOS~Collaboration
\affil{California Institute of Technology,\\
MC 105-24, 1200 East California Boulevard, Pasadena, CA 91125, USA}
}
```

produces

Kartik Sheth, Lori Spalsbury, Nick Scoville,
and the COSMOS Collaboration
California Institute of Technology,
MC 105-24, 1200 East California Boulevard, Pasadena, CA 91125, USA

Multiple Authors, Multiple Affiliations

```
\author{Tom~Speltincx,$^1$ Eija~Laurikainen,$^1$ Heikki~Salo,$^1$
Ronald~Buta,$^2$\\ and Johan~H.~Knapen$^3$
\affil{$^1$Department of Physical Science, Division of Astronomy,\\
University of Oulu, Finland\\
$^2$Department of Physics and Astronomy, University of Alabama, USA\\
$^3$Instituto de Astrof\'\i sica de Canarias, E-38200 La Laguna,\\
Tenerife, Spain}
}
```

produces

Tom Speltincx,[1] Eija Laurikainen,[1] Heikki Salo,[1] Ronald Buta,[2]
and Johan H. Knapen[3]
[1]*Department of Physical Science, Division of Astronomy,*
University of Oulu, Finland
[2]*Department of Physics and Astronomy, University of Alabama, USA*
[3]*Instituto de Astrofísica de Canarias, E-38200 La Laguna,*
Tenerife, Spain

3.2.   Dividing Your Article into Sections

Sections can be either numbered or unnumbered.

3.2.1.   Numbered Sections

You can divide your text into sections, as is done in this manual. The `asp2010` style supports three levels of numbered sectioning. Top level sections are created with the following command:

`\section{`*heading*`}`

Mid-level sections are created using:

`\subsection{`*heading*`}`

Bottom level sections can be created using either

`\subsubsection{`*heading*`}`,

which starts the text, unindented, on a separate line as shown above, or with

`\altsubsubsection{`*heading*`}`,

which produces an italicized heading with run-on text. The headers are numbered in each case.

The command `\altsubsubsection{`*heading*`}` is very useful for saving space in shorter contributions, especially posters. Keep the structure of your text within the three-tier hierarchy; if that is not possible, then consult the volume editors, who may have their preferences.

3.2.2.   Unnumbered Sections

If you prefer not to have any of your sections numbered then use the following asterisked commands which suppress the numbering:

`\section*{`*heading*`}`
`\subsection*{`*heading*`}`
`\subsubsection*{`*heading*`}`
`\altsubsubsection*{`*heading*`}`

3.2.3.   Math Expressions in Section Headers

If you type

`\section*{Evolution of Elliptical Galaxies to $z = 0.6$}`

you get

Evolution of Elliptical Galaxies to $z = 0.6$

To ensure that the expression $z = 0.6$ is rendered in boldface use the `\boldmath` command,

```
\section*{Evolution of Elliptical Galaxies to \boldmath $z = 0.6$}
```

which gives

Evolution of Elliptical Galaxies to $z = 0.6$

as required.

3.3. References to Sections Within the Text

If you refer to individual sections in your paper within the paper itself, then you can save time and avoid referencing errors by making use of LaTeX 2_ε's powerful internal cross-referencing capabilities. To use this capability, the `\label{}` command needs to be inserted immediately after the object to be referenced (e.g., a section, figure, or table). You need to insert a unique code inside the braces. The reference is then effected within the text by using the command `\ref{}`, which will give the number of the section, figure, or table. If you wish to refer to the page on which the object occurs, then you will need to use the command `\pageref{}`.

> ***Example:*** To get 'See Sect. 3.2 on page 8.' you write
> `See Sect.\ \ref{sectioning} on page~\pageref{sectioning}.`

Note that in this case, the command `\label{sectioning}` was placed just below the actual command for that section.

When alterations are made to the text, LaTeX takes care of updating the cross-references. Take note that labels require compiling the document at least twice to integrate the references correctly.

3.4. Bibliographic References

Bibliographic references consists of three tasks:

1. Compiling the list of references

2. Inserting the references into the main text

3. Listing the references in the bibliography at the end of the article

Task 1 is accomplished by creating a bibliographic data file (`bib` file) listing the references. Task 2 is accomplished using the `natbib` package (Daly 2007)[4] and task 3 is carried out by BibTeX (Markey 2005),[5] which takes the necessary information from the `bib` file (see Sect. 3.4.1).

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[4]`http://www.ctan.org/tex-archive/macros/latex/contrib/natbib/`

[5]`http://tug.ctan.org/tex-archive/info/bibtex/tamethebeast/ttb_en.pdf`

3.4.1.   Using BibTeX

How BibTeX Works.   BibTeX takes care of compiling the bibliographic list at the end
of the article and also gives a framework for referencing the entries within the text.[6]
The package takes information from the author-provided `.bib` file and processes that
information with a bibliographic style (`.bst`) file.[7] The `\bibliography{author}`
command (which takes the `author.bib` file as its argument) at the end of the article
then prompts LaTeX 2ε to construct the list of references in the correct format. The
`natbib` package is used in the main text to invoke the references (see Sect. 3.4.2).

   The principal benefits of using BibTeX are that first, the author is not burdened
with the task of correctly formatting the bibliographic list, a chore that is taken care of
by BibTeX and second, once constructed, the `.bib` file can be added to progressively
and applied to any other `.bst` file to meet all your future publishing requirements.

Using the `author.bib` File.   To implement BibTeX in your article you will need to
enter the details of your bibliographic references into the `author.bib` file that comes
with these instructions.[8]

   The `author.bib` file has templates for seven types of bibliographic items, each
with its own set of fields:

1. Articles (fields: author, title, journal, year, volume, pages)

2. Books (fields: author, title, edition, publisher, address, year)

3. Contributions to proceedings (fields: author, title, booktitle, year, editor, pages,
   publisher, address, volume, series)

4. Manuals (fields: author, title, year)

5. Ph.D. theses (fields: author, title, school, year)

6. Proceedings volumes (fields: title, year, editor, publisher, address, volume, se-
   ries)

7. Technical reports (fields: author, title, institution, year, number)

   Examples of the use of each of these classes, together with their respective fields,
are to be found in the `asp2010.bib`. Note the following:

- New entries must begin with the @ symbol, followed by an opening brace and the
  bibliographic code (the same one used as for the `natbib` citation in the text).

- Non-numerical character strings must be enclosed in double inverted commas.

---

[6]For an exhaustive account of how BibTeX works, see Markey (2005).

[7]The ASP bibliographic style file (`asp2010.bst`) is used in order to ensure conformity with agreed stan-
dards of bibliographic referencing in astronomy. This `.bst` file is invoked in the author template. This file
comes with the ASP Conference Series instructions.

[8]Download at `http://www.aspbooks.org`

- Numerical entries need not be enclosed in inverted commas, but blank numerical fields should be indicated by `""`.

- Each field entry must terminate with a comma.

- For articles in proceedings, the title of a proceedings volume is denoted by the field `booktitle`.

- For references to proceedings volumes the volume title is denoted by the field `title`.

- The entry must terminate with a closing brace.

- For multiple bibliographic items by the same author in a given year, it is not necessary to add "a", "b", etc., to the year; that is taken care of automatically by BibTeX.

Compiling the Bibliographic List.   When the `author.bib` file is completed, the bibliographic list is constructed through the following routine:

```
latex [authorfile]
bibtex [authorfile]
latex [authorfile]
latex [authorfile]
```

- During first execution of LaTeX 2ε, there is no bibliographic information yet established, therefore there are not yet any references, but the `natbib` code of each bibliographic entry is included in the `.aux` file.

- The `bibtex` takes the bibliographic codes from the `.aux` file. The `.bst` is then applied to the bibliographic data in the `.aux` and `.bib` files, and the bibliography is written into a `.bbl` file. The entire operation is logged in the `.blg` file.

- In the second LaTeX 2ε run, the `.bbl` file is used to execute the `\bibitem` commands and the biliographical cross-references are written into the `.aux` file.

- During the third LaTeX 2ε compilation LaTeX 2ε stores the references to the bibliographic citations in the `.aux` file.

3.4.2. Inserting Bibliographic References in the Text

The reference system to be followed is the standard author–year system.

3.4.3. Single Author

Author name followed by the year in parentheses, as in Abt (1990), or author and year both in parentheses (Abt 1990).

3.4.4. Two Authors

Author names separated by an ampersand (no comma) are *not* to be abbreviated subsequently to Author1 et al. In parentheses use (Author1 & Author2 1999).

3.4.5. Three Authors

When first mentioned in text use the format Author1, Author2, & Author3 (year) (note serial comma before ampersand). Subsequently, abbreviate to Author1 et al. When authors and year are both within parentheses use (Author1, Author2, & Author3 1999) or (Author1 et al. 1999). We adopt the editorial convention of not italicizing the phrase 'et al.'

3.4.6. More than Three Authors

Use the format Author1 et al. Please do not use Author1, Author2, Author3, et al., since Authors 2 and 3 will be deleted during the copy editing! In parentheses: (Author1 et al., 1999).

3.4.7. Citing Multiple Works

Inside parentheses, citations are separated by a semicolon: (Biretta, Lo, & Young 1982; Forrest et al. 1987; Lee 1995).

Outside of parentheses, use commas: "According to Biretta, Lo, & Young (1982), Forrest et al. (1987), and Lee (1995), there is strong evidence to suggest that. . . "

3.5. LaTeX Markup of References

Referencing in a text consists of *citations* in the body of the text of *sources* listed in the `author.bib` file. Although LaTeX permits various ways of citing and listing bibliographic references, we would strongly urge authors to use only the `natbib` package for citations in the main text in conjunction with the BibTeX package, which is described in detail in Section 3.4.1. In what follows it is particularly important to realize that the author codes (the arguments of the `natbib` commands below) are faithfully copied into the `author.bib` file in order for BibTeX to link the `natbib` citations to the bibliographic data contained in the `author.bib` file.

3.5.1. Using `natbib`

Standard LaTeX does not support the author–year system, so it is necessary to invoke Patrick W. Daly's `natbib.sty`; this is done automatically when you compile your LaTeX file. The following examples illustrate how two commands, `\citet{}` and `\citep{}`, meet most bibliographic needs (Note carefully the syntax for getting pre- and post-notes.):

```
\citet{texbook}              ⟶   Knuth (1986)
\citep{texbook}              ⟶   (Knuth 1986)
\citet*{latexcompanion}      ⟶   Goossens, Mittelbach, & Samarin (1994)
\citep*{latexcompanion}      ⟶   (Goossens, Mittelbach, & Samarin 1994)
\citet{latexcompanion}       ⟶   Goossens et al. (1994)
\citep{latexcompanion}       ⟶   (Goossens et al. 1994)
\citep[see][]{texbook}       ⟶   (see Knuth 1986)
\citep[p.\ 427]{texbook}     ⟶   (Knuth 1986, p. 427)
\citep[see][p.\ 427]{texbook} ⟶  (see Knuth 1986, p. 427)
```

Another extremely useful facility provided by `natbib` is the possibility of multiple citations:

```
\citet{jones_blandhawthorn_1998,jones_blandhawthorn_1999}
```
⟶ Jones & Bland-Hawthorn (1998, 1999)

```
\citep{jones_blandhawthorn_1998,jones_blandhawthorn_1999}
```
⟶ (Jones & Bland-Hawthorn 1998, 1999)

```
\citet{blandhawthorn_jones_1998a,blandhawthorn_jones_1998b}
```
⟶ Bland-Hawthorn & Jones (1998a,b)

```
\citep{blandhawthorn_jones_1998a,blandhawthorn_jones_1998b}
```
⟶ (Bland-Hawthorn & Jones 1998a,b)

You may occasionally need to mention author names without giving the dates (to avoid needlessly cluttering up the text with parentheses, for example), or to cite the date by itself, so you may find the following commands useful:

```
\citeauthor{latexcompanion}   ⟶   Goossens et al.
\citeauthor*{latexcompanion}  ⟶   Goossens, Mittelbach, & Samarin
\citeyear{latexcompanion}     ⟶   1994
\citeyearpar{latexcompanion}  ⟶   (1994)
```

If you need to resort to "non-citations," such as "in preparation" or "private communication," you might find useful

```
\citetext{in preparation}   ⟶   (in preparation)
```

Note that such citations as these have no place in the bibliographic list since the reader has no means of ascertaining their accuracy or veracity.

If the "van" in a name like van de Hulst starts a sentence it must be capitalized. `natbib` offers the following commands for achieving this in a number of contexts:

```
\Citet{vandehulst_1981}       ⟶   Van de Hulst (1981)
\Citep{vandehulst_1981}       ⟶   (Van de Hulst 1981)
\Citeauthor{vandehulst_1981}  ⟶   Van de Hulst
```

3.6.   Typesetting the Main Text

The first paragraphs in top-, second-, and regular third-level sections will automatically appear without indentation. That is intentional and conforms to standard publishing practices. Any deviations from this style will be reversed during the editorial process prior to printing. All subsequent paragraphs will be indented. For third-level sections using `\altsubsubsection{}`, the first paragraph simply runs on from the section title with no paragraph break; all subsequent sections are indented.

In LaTeX, paragraphs are indicated either by the `\par` command or with a double carriage return. Never use the `\\` command to indicate a new paragraph, since this will only start a new line with no indentation, which can be confusing to the reader (and to the editor!).

Text is keyed in in the usual way. Appendix A lists most of the LaTeX textual symbols that you will ever need. LaTeX will ignore the typist's convention of a double space after points, colons and semicolons, and will adjust the spacing between words and punctuation marks according to its own internal typesetting rules.

3.6.1.   Wordbreaks

Occasionally, you will find that a word will overrun the right text margin; this must be corrected since whatever overshoots the margins will not be printed in the published version. This most often occurs in long technical words or acronyms which LaTeX does not know how to split. A simple way of ensuring a break in the middle of a word is to insert `\-` after a syllable where a linebreak is allowed. As an example, possible word breaks in the word "buckminsterfullerene" could be keyed in as follows:

```
buck\-min\-ster\-ful\-ler\-ene
```

Merriam-Webster's Collegiate Dictionary (Merriam-Webster 2003), which all authors and editors working in American English should have at their side, is an excellent guide to correct word division and is also useful in this respect for British English.[9]

If you find the occasional bad word break, you can use

`\begin{sloppypar}` *text of paragraph* `\end{sloppypar}`

which permits larger than normal inter-word spacing for the offending paragraph while still permitting wordbreaks. Don't overuse the `sloppypar` environment since it may result in some very sparse lines of text. You can also avoid bad word breaks by preceding a phrase with `\sloppy` and following it with the command `\fussy` (which switches `\sloppy` off). If none of these techniques offers an acceptable solution, it might be necessary to redraft the offending sentence.

---

[9]See Mahoney (2002) for a list of useful aids for authors and editors.

3.6.2. Spacing after Periods

A word needs to be said about the spacing after points. If a sentence ends with a lower case letter you need do nothing except put the end point (period or "full stop"). If, however, a sentence contains an abbreviation that ends in a point but does not end the sentence (a common one being *etc*.), then a backslash or a tilde must link the stop and the following word in order not to leave too large a space between the abbreviation and the word. So for

```
Bloggs et al. got it wrong.        →        Bloggs et al. got it wrong.
```

we should have typed

```
Bloggs et al.˜got it wrong.        →        Bloggs et al. got it wrong.
```

(the difference in this example is slight but it can be considerable for a particularly dense line of type). Keep a lookout for parenthetical phrases ending in "etc.)": if such a parenthesis occurs in mid-sentence you should type `etc.)˜` and not just `etc.)`.

A further complication occurs with sentences ending in capitals. LaTeX normally puts an interword—not an intersentence—space after a point preceded by a capital so as not to leave too large a space after initials in a name. You can force an intersentence space by appending the @ symbol to any stop preceded by a capital. Hence write

```
I love vitamin C.@ It starts the day off right.
```

to get the correct spacing between the point and the capital starting the next sentence.

3.6.3. Vertical Spacing

Regarding vertical spacing, the `\vspace` command should not be used by authors to squeeze in a few more lines of text, as it will probably cause problems when added to the entire volume. Rewrite portions of the paper, if necessary, to stay within page limitations.

3.6.4. Removal of Commented-out Text

Text that has been commented out in the LaTeX file can "reappear" when viewed in a different text editor. Authors must delete that commented-out text before sending the manuscript to the editor. Avoiding or removing LaTeX customizations and adjustments will make the editor's tasks much easier.

> *LaTeX Booby Trap Warning:* Never type "%" on its own. Doing so will remove whatever follows it until the next carriage return. If you want to write, say, 10% you must insert a backslash (\) before the "%" symbol.

If you accidentally let a lone % symbol loose in the text and then carry on typing away merrily without hitting the carriage return, you will end up with a large chunk of missing text and it might not be at all obvious why. If you find text mysteriously disappearing, it might be a good idea to do a search for lone % symbols (remembering to insert a blank space before the % symbol in your search tool).

3.6.5. Fonts

LaTeX 2$_\varepsilon$ organizes fonts according to *shape*, *series*, and *family* (see Table 1). Font types can be invoked either as *commands* (which can also be used to insert normal text into equations, etc.) or as *declarations* (which cannot be used in mathmode); in other words, for ordinary text use the declarations and for mathmode use the commands, as shown in Table 1. If you happen to change fonts in a paragraph, remember to enclose the declaration in curly brackets so that the declaration does not overspill into the rest of the text.

Table 1. Typefaces in LaTeX 2$_\varepsilon$

Command	Declaration	Both will give:
`\textup{}`	`\upshape`	Upright text
`\textit{}`	`\itshape`	*Italics*
`\textsl{}`	`\slshape`	*Slanted text*
`\textsc{}`	`\scshape`	Small caps
`\textmd{}`	`\mdseries`	A medium-weight typeface
`\textbf{}`	`\bfseries`	**Boldface**
`\textrm{}`	`\rmfamily`	Roman type
`\textsf{}`	`\sffamily`	Sans serif type
`\texttt{}`	`\ttfamily`	`Typewriter type`

Font size can be changed with the commands in Table 2. In `asp2010` style, `\normalsize` is 11 pt, and the other sizes scale accordingly.

3.7. Acknowledgments Section

If you wish to have an acknowledgments section, use the command

```
\acknowledgments
```

in the template file. The text should follow after pressing the space bar once. So write simply,

```
\acknowledgements We thank the Big Bang for making
this symposium possible.
```

to produce:

Table 2.   LaTeX commands for changing font size

Command	Size
`\tiny`	Tiny
`\scriptsize`	Scriptsize
`\footnotesize`	Footnotesize
`\small`	Small
`\normalsize`	Normalsize
`\large`	Large
`\Large`	Larger
`\LARGE`	Larger still
`\huge`	Yet larger
`\Huge`	Huge

Acknowledgments. We thank the Big Bang for making this symposium possible.

This will separate the acknowledgments from the previous section with a section division spacing and indent the word *Acknowledgements* in boldface. Do *not* use `\section{Acknowledgments}` to create an acknowledgements section (it does not warrant and should not have full section status).

3.8. Mathematics

LaTeX can produce highly sophisticated pages of mathematics, but most authors will be able to get by with a very limited subset of LaTeX commands. The most common LaTeX mathematical commands and a number of useful macros for expressions frequently found in astronomy are listed in Appendix A. If your paper involves a lot of mathematics, then you should obtain a copy of Leslie Lamport's *LaTeX User's Guide and Reference Manual* (Lamport 1994), which caters to the most common mathematical typesetting needs of authors. A more detailed discussion of LaTeX mathematical typesetting is given in Kopka & Daly (1999). For an exhaustive discussion of the general principles of typesetting mathematics, consult the *Chicago Manual of Style* (University of Chicago Press 2003).

The most common typesetting failings of authors are:

- Not putting mathematical variables and constants in italics, both in displayed equations and in the text itself. You should write, for example,

$$t_0 = \frac{3(t_1 + t_2 + t_3 + t_4) \pm \sqrt{H}}{12}$$

and not

$$\mathrm{t_0} = \frac{3(\mathrm{t_1 + t_2 + t_3 + t_4}) \pm \sqrt{\mathrm{H}}}{12}$$

- Haphazard use of enclosures (parentheses, brackets, etc.). As a general rule, try to follow the scheme recommended in *The Chicago Manual of Style*:

$$\left\{\left[\left(\{[(\quad)]\}\right)\right]\right\}$$

Displayed equations can be typeset in many ways using the standard displayed math environments of LaTeX; these three are probably of greatest use:

```
\begin{displaymath}
\end{displaymath}
\begin{equation}
\end{equation}
\begin{eqnarray}
\end{eqnarray}
```

The `displaymath` environment will break out a single, unnumbered formula. The same effect can be obtained by enclosing the mathematical expression in the double dollar sign (`$$ . . . $$`) or inside the delimiters `\[ . . . \]`. The equation will appear the same if it is set in an `equation` environment, and it will be autonumbered by LaTeX. So

```
\begin{equation}
{\mathbold\nabla g\cdot T} = \frac{\partial g}{\partial x}
\left( -\frac{\partial f}{\partial y}\right) +
\frac{\partial g}{\partial f}\frac{\partial f}{\partial x}
= \frac{\partial (f,g)}{\partial(x,y)}
\end{equation}
```

will produce:

$$\nabla g{\cdot}\mathbf{T}a = \frac{\partial g}{\partial x}\left(-\frac{\partial f}{\partial y}\right) + \frac{\partial g}{\partial f}\frac{\partial f}{\partial x} = \frac{\partial(f,g)}{\partial(x,y)} \tag{1}$$

and the same equation typeset in the `displaymath` environment will suppress the equation number.

In order to set several formulae in which vertical alignment is required, use the `eqnarray` environment. This environment will automatically number each line of the equation. If you want only certain lines numbered, then you can suppress the numbering of a given line by typing `\nonumber` after it. Use `eqnarray*` if you wish to avoid all numbering. Here is an example of the `eqnarray` environment in use:

```
\begin{eqnarray}
\int\!\int\limits_R\!\int_R f\,dx\,dy\,dz & = &
\int\limits_{0}^{1}\int_{0}^{x^2}\int\limits_{0}^{x+y}
(2x - y -z) dx\,dy\,dz\nonumber\\
& = & \frac{3}{2}\int\limits_{0}^{1}\int\limits_{0}^{x^2}
\left(x^2 - y^2\right)\,dy\,dz\nonumber\\
& = & \frac{3}{2}\int\limits_{0}^{1}
```

```
\left(x^4 - \frac{x^6}{3}\right)\,dx\nonumber\\
& = & \frac{8}{35}.
\end{eqnarray}
```

would produce

$$\iiint\limits_R f\,dx\,dy\,dz \;=\; \int_0^1 \int_0^{x^2} \int_0^{x+y} (2x - y - z)\,dx\,dy\,dz$$

$$= \;\frac{3}{2} \int_0^1 \int_0^{x^2} \left(x^2 - y^2\right) dy\,dz$$

$$= \;\frac{3}{2} \int_0^1 \left(x^4 - \frac{x^6}{3}\right) dx$$

$$= \;\frac{8}{35}. \tag{2}$$

If you need to equate a single-line expression to a multiple-line expression, or matrices and determinants, then you will need the `array` environment. Here are some examples of the `array` environment at work:

3.8.1.   Expression Involving Multiple Lines in a Single-line Equation

```
\[
Y_l^m(\theta,\phi)
= \sqrt{{\frac{2l+1}{4\pi}}\frac{(l-|m|)!}{(l+|m|)!}}
P_l^{|m|}(\cos \theta)e^{im\phi}\times \left\{
\begin{array}{ll}
(-1)^m & \mbox{for $m \ge 0$}\\
1      & \mbox{for $m < 0$}
\end{array}
\right.
\]
```

produces

$$Y_l^m(\theta, \phi) = \sqrt{\frac{2l+1}{4\pi}\frac{(l-|m|)!}{(l+|m|)!}}\,P_l^{|m|}(\cos\theta)e^{im\phi} \times \left\{ \begin{array}{ll} (-1)^m & \text{for } m \ge 0 \\ 1 & \text{for } m < 0 \end{array} \right.$$

The `ll` argument indicates that the elements of the array are to be left justified. Other justifications are right justified (`r`) and centered (`c`). The expression `\right.` (the point is there intentionally) indicates that the right brace should be invisible.

3.8.2.   Matrices and Determinants

```
\[
\left(
\begin{array}{cc}
a_{11} & a_{12}\cdots a_{1n}\\
a_{21} & a_{22}\cdots a_{2n}\\
\vdots & \vdots\hfil\ddots\hfil\vdots\\
a_{n1} & a_{n2}\cdots a_{nn}
\end{array}
\right)
\left(
\begin{array}{c}
x_1\\
x_2\\
\vdots\\
x_n
\end{array}
\right) =
\left(
\begin{array}{c}
h_1\\
H_2\\
\vdots\\
h_n
\end{array}
\right)
\]
```

gives

$$\begin{pmatrix} a_{11} & a_{12}\cdots a_{1n} \\ a_{21} & a_{22}\cdots a_{2n} \\ \vdots & \vdots \;\; \ddots \;\; \vdots \\ a_{n1} & a_{n2}\cdots a_{nn} \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \\ \vdots \\ x_n \end{pmatrix} = \begin{pmatrix} h_1 \\ h_2 \\ \vdots \\ h_n \end{pmatrix}$$

and

```
\begin{eqnarray*}
I_b & = & \frac{\left|\begin{array}{ccc}
-(R_1 + R_3) & -V & R_3\\
      R_1    &  0 & R_5\\
     -R_3    &  0 & R_3 + R_4 + R_5
\end{array}\right|}{\left|\begin{array}{ccc}
-(R_1 + R_3)    &       0     &      R_3\\
      R_1       & -(R_1 + R_2 + R_5) & R_5\\
     -R_3       &     -R_5    & R_3 + R_4 + R_5
\end{array}\right|} \\
    & = & \frac{VR_5R_3 + VR_1(R_3 + R_4 + R_5)}{\Delta}
```

```
\end{eqnarray*}
```

gives

$$I_b = \frac{\begin{vmatrix} -(R_1+R_3) & -V & R_3 \\ R_1 & 0 & R_5 \\ -R_3 & 0 & R_3+R_4+R_5 \end{vmatrix}}{\begin{vmatrix} -(R_1+R_3) & 0 & R_3 \\ R_1 & -(R_1+R_2+R_5) & R_5 \\ -R_3 & -R_5 & R_3+R_4+R_5 \end{vmatrix}}$$

$$= \frac{VR_5R_3 + VR_1(R_3+R_4+R_5)}{\Delta}$$

To incorporate a mathematical equation or expression into a line of text, enclose it with either the \(. . .\) or the single $ signs (the double dollar signs, $$, would create an unnumbered displayed equation). When typesetting in a line of text such mathematical expressions as

$$\frac{x}{a} + \frac{y}{4a},$$

use the solidus (/) to produce $x/a + y/(4a)$. Using the solidus avoids uneven line spacings. Note also that the \(. . . \) delimiter automatically takes care to force integral and summation limits to fit the text line; hence,

```
\(\( f(x) = A_0 +
\Sigma_{n = 1)^{\infty}\left\{ a_n \cos nx +
b_n \sin nx \right\}
\)
```

will produce $f(x) = A_0 + \Sigma_{n=1}^{\infty} \{a_n \cos nx + b_n \sin nx\}$ to fit into a line of text without causing extra line spacing.

4. Tables

Keep the layout of your tables as simple as possible, with single horizontal rules above and below the column headings and a third horizontal line at the bottom of the table; don't use vertical rules for separating the columns. Physical units in the column heads should appear in parentheses beneath the parameter. The caption goes at the top of the table. For single-sentence captions there should be no stop. Here is a simple table and the LaTeX code to produce it:

```
\begin{table}[!ht]
\caption{A simple table}
\smallskip
\begin{center}
{\small
\begin{tabular}{ccccc}
```

Table 3.   A simple table

Component	Velocity [km s^{-1}]	$N_{\mathrm{O\,VI}}$ [cm^{-2}]	N_{H} [cm^{-2}]	Covering factor
1	-1352	1.7×10^{15}	9.0×10^{14}	1.0
2	-599	4.1×10^{15}	2.1×10^{15}	0.9
3	-792	2.1×10^{15}	1.7×10^{15}	0.7
4	-1029	6.0×10^{15}	2.3×10^{15}	0.5

```
\tableline
\noalign{\smallskip}
Component & Velocity & $N_{\mathrm{O\, VI}}$
& $N_{\mathrm{H}}$ & Covering factor\\
        &[km s$^{-1}$]& [cm$^{-2}$]& [cm$^{-2}$]& \\
\noalign{\smallskip}
\tableline
\noalign{\smallskip}
1 & $-1352$ & $1.7 \times 10^{15}$ & $9.0 \times 10^{14}$ & 1.0\\
2 & $-599$  & $4.1 \times 10^{15}$ & $2.1 \times 10^{15}$ & 0.9\\
3 & $-792$  & $2.1 \times 10^{15}$ & $1.7 \times 10^{15}$ & 0.7\\
4 & $-1029$ & $6.0 \times 10^{15}$ & $2.3 \times 10^{15}$ & 0.5\\
\noalign{\smallskip}
\tableline
\end{tabular}
}
\end{center}
\end{table}
```

The `\begin{table}[!ht]` and `\end{table}` commands float the table in the document, the `[!ht]` argument causing the table to be put either at the top of the page or closest to the point in the text where these commands are invoked. The `\caption{}` command placed right after the `\begin{table}` command puts the caption above the table, which is ASP house style. The `\smallskip` command inserts a small space between the caption and the table. The commands `\begin{center}` and `\end{center}` center the table between the left and right margins (although the caption remains uncentered in this sense). The table proper begins with the code declaration `\begin{tabular}{ccccc}`, which starts the `tabular` environment. The five "c" characters within the braces will create five centered columns. Horizontal rules are drawn using the command `\tableline`. In order to prevent the following text from being printed too close to this line you need to insert a small vertical space with the command `\noalign{\smallskip}`; the `\noalign{}` command is necessary inside the `tabular` environment. The column entries are separated by an ampersand and a carriage return \\ must be placed at the end of each row in the table.

To subdivide column headings use the `\multicolumn{}{}{}` command, as in the following example:

Table 4.   A more complicated table

Target	Type	$v \sin i$ [km s^{-1}]	
		Measured	Adopted
BH Cep	HAe/Be	97 ± 8(8); 97 ± 5(7); 98 ± 6(11)	97
49 Cet	Vega-like	183 ± 9(4); 187 ± 4(3)	186
⋮	⋮	⋮	⋮
HD 233517	Vega-like	17 ± 3(5), 16 ± 2(6); 15 ± 2(24)	15

This table was produced with the following LaTeX code:

```
\begin{table}[!ht]
\caption{A more complicated table}
\smallskip
\begin{center}
{\small
\begin{tabular}{llll}
\tableline
\noalign{\smallskip}
Target & Type & \multicolumn{2}{c}{$v\sin i$ (km s$^{-1}$)}\\
\noalign{\smallskip}
\cline{3-4}
\noalign{\smallskip}
       &        & Measured & Adopted\\
\noalign{\smallskip}
\tableline
\noalign{\smallskip}
BH Cep & HAe/Be &97 $\pm$ 8(8); 97 $\pm$ 5(7);
98 $\pm$ 6(11) & 97\\
49 Cet & Vega-like & 183 $\pm$ 9(4);
187 $\pm$ 4(3)& 186\\
$\vdots$ & $\vdots$ & $\vdots$ & $\vdots$\\
HD 233517 & Vega-like & 17 $\pm$ 3(5), 1
6 $\pm$ 2(6); 15 $\pm$ 2(24) & 15\\
\noalign{\smallskip}
\tableline
\end{tabular}
}
\end{center}
\end{table}
```

The three arguments for the \multicolumn{}{}{} command are: 1) the number of columns over which the entry is spread, 2) column alignment (l = left justified, r = right justified, and c = centered), and 3) text.

Note the use of the `\cline{3-4}` command to draw a horizontal rule for the third and fourth columns only. It is also preceded and followed by

```
\noalign{\smallskip}
```

in order to avoid a cluttered appearance.

LaTeX can produce tables of any degree of complexity and it would take many pages to describe all the possibilites here. For further information on tables, refer to Kopka & Daly (1999). There should be only one table per environment.

Finally, here is an example of a landscape table.

```
\begin{landscape}
\begin{table}[!ht]
\caption{A table in landscape mode}
\smallskip
\begin{center}
{\small
\begin{tabular}{l@{\extracolsep{\fill}}ccccccc}
\tableline
\noalign{\smallskip}
{\itshape IRAS} name& $z$ & Type & FWHM &
\multicolumn{2}{c}{Colors in 1$\arcsec$} &
\multicolumn{2}{c}{for 1000 K dust}\\
&&&[kpc] & $J-H$ & $H-K$ & $A_V$ & $f_K$\\
\noalign{\smallskip}
\tableline
\noalign{\smallskip}
00150+4937 S & 0.148 & ? & 1.11 & 1.13 &
{\small  1.06 & 4.61 & 0.40\\
$\vdots$&$\vdots$&$\vdots$&
$\vdots$&$\vdots$&$\vdots$&$\vdots$&$\vdots$\\
12112+0305 NE & 0.073 LINER & $<0.48$ & 1.06 &
0.97 & 4.00 & 0.45\\
\noalign{\smallskip}
\tableline
\end{tabular}
}
\end{center}
\end{table}
\end{landscape}
```

Note the `@{\extracolsep{\fill}}` expression after the first column positional format entry (`l`). This provides rubber intercolumn separation to spread the columns over the entire width of the table.

Also note that when the margin outlines are activated, the margin box will not appear properly on landscape pages.

Table 5.   A table in landscape mode

| IRAS name | z | Type | FWHM [kpc] | Colors in 1″ | | | for 1000 K dust | | |
				J − H	H − K	A_V	f_K
00150+4937 S	0.148	?	1.11	1.13	1.06	4.61	0.40
⋯	⋯	⋯	⋯	⋯	⋯	⋯	⋯
⋯	⋯	⋯	⋯	⋯	⋯	⋯	⋯
⋯	⋯	⋯	⋯	⋯	⋯	⋯	⋯
⋯	⋯	⋯	⋯	⋯	⋯	⋯	⋯
⋯	⋯	⋯	⋯	⋯	⋯	⋯	⋯
⋯	⋯	⋯	⋯	⋯	⋯	⋯	⋯
⋯	⋯	⋯	⋯	⋯	⋯	⋯	⋯
⋯	⋯	⋯	⋯	⋯	⋯	⋯	⋯
⋯	⋯	⋯	⋯	⋯	⋯	⋯	⋯
⋯	⋯	⋯	⋯	⋯	⋯	⋯	⋯
⋯	⋯	⋯	⋯	⋯	⋯	⋯	⋯
⋯	⋯	⋯	⋯	⋯	⋯	⋯	⋯
12112+0305 NE		LINER	< 0.48	1.06	0.97	4.00	0.45

5. Figures

5.1. Copyrighted Images

If a figure that is not your own has been previously published, you must receive written permission from the original publisher to use the image in your paper. At the end of the figure caption include an acknowledgement of the source (Such as 'Courtesy of . . .'). A "Permission to Use" form and sample acknowledgements are available online on the Authors' Information page[10] for your convenience.

5.2. Directory Structure

Editors sometimes encounter pathnames that they cannot access (e.g., the author's home directory). Please keep all your files in the same directory to avoid the pathname problem.

5.3. Image Size and Legibility

Please ensure that the size of your figures is not below the limit of legibility. All text in figures must be readable at a 10% reduction. Please also ensure that your figures have no surrounding white margins: your figures should be cropped for the removal of all such margins. Images must also fit within the text margins (5.25 inches, 13.4 cm). See *Size of Illustrations* below for help with large images.

5.4. Resolution

For a minimum quality print of the image, the figure should be submitted with a resolution greater than 266 ppi (pixels per inch). Bear in mind that line diagrams (black and white graphs, etc.) must be of a suitably higher resolution (e.g., 800 ppi) to avoid pixelation.

Hairlines in graphs, charts and other illustrations do not reproduce well; use a minimum .25 point (0.0035 in.) line weight. Also, ensure that contour lines will not run together with a 10% reduction.

For line illustrations use vector diagrams instead of scanning a previously published line diagram wherever possible. If you do decide to scan, say, a graph, ensure that all text, especially physical units, are legible with a 10% reduction. See also the subsection on font conversion for information on fonts in vector diagrams.

For more complete information on image types, resolution, size and color, please see the technical documentation from our printer.[11]

---

[10]`http:\\www.aspbooks.org`

[11]Pertinent printer technical documentation can be found at these URLs:

> Digital Art Guidelines:
> `http://dx.sheridan.com/guidelines/digital_art.html`
> Resolution information:
> `http://dx.sheridan.com/advisor/effective_resolution.html`

5.5. Photographs

Photographs should be saved or scanned in `.eps` format, must be scaled and positioned to fit within margins and must be of sufficiently high resolution (266-600 ppi) to reproduce well. Remember that captions should describe the photo in black and white unless paying for color printing. If you wish to put unnumbered captions, refer to Section 5.6.

5.6. Figure Captions without Numbers

If you wish to have unnumbered figure captions, simply write the text without the `\caption{}` command, taking care to include the text *inside* the `figure` environment (i.e., it must be place before the `\end{figure}` command, not after it).

5.7. Color

ASP Conference Series books are printed in black and white, with exceptional use being made of color where the author or author's institution is prepared to pay for this. Color images may be printed in color at an additional cost for each image. Contact the volume editor for questions regarding printing images in color. ASP does offer authors free color reproduction in the electronic version of the volume which will be available at `www.aspbooks.org`. If an image is available in color, authors should submit the color image. The color will be retained on the website but converted to grayscale for the printed volume, unless the author has paid for color printing.

When converted to grayscale, many colors tend to appear the same. For example, dark shades of red, green and blue will all appear as black in a grayscale image. Yellow and light green may become white. If this will cause confusion, it may be best to redo the image or pay for color printing. If concerned about the conversion to grayscale, an author should submit an acceptable grayscale image, clearly named, along with the color image.

Another problem can arise when an image is to be printed out in color. The computer screen uses the three-color model of Red, Green, Blue (RGB). When color is printed, the four-color model of Cyan, Magenta, Yellow, and Black (CMYK) is used. The results in the colors are slightly different. The change is barely noticeable with photographs, but other graphics may be greatly affected. To prevent tonal shifts, authors should submit images created in CMYK.

5.8. Color Figure Captions

When submitting a color image for the electronic version only, provide a caption that works equally for both the color and grayscale versions since the book will be printed in only black and white.

Color information:
`http://dx.sheridan.com/advisor/cmyk_color.html`

5.9.   Font Conversion

Another typical issue is the use of Type 3 fonts within figures. The use of this type of font results in unpredictable results at the printer. Type 3 fonts are used as the default for dvips. To use the correct type (Type 1) when using dvips, add the option -Ppdf to dvips. A command might look like the following:

```
dvips -Ppdf figure.dvi
```

Also, please use standard Type 1 fonts (Times New Roman, Arial, etc.) for text embedded in images to avoid font problems in printing.

5.10.   Figure Placement in Text

Figures can be placed in the text using one of the convenient `asp2010.sty` figure placement macros, or they can be placed in the the text using the basic LaTeX figure commands which provide more customizeable functionality.

5.10.1.   Quick Figure Placement Commands

To quickly insert images with a caption and a reference label you can use one of the following commands. Note that if no label is required, or if no caption is desired, the corresponding argument in the command can be left blank.

For one image:

> \articlefigure[*options*]{*image file path and image file name*}{*reference label*}{*caption*}

The options in this command are the same as those for the `\includegraphics` command (see section 5.12 on page 32). The most common use of this command will require no options at all.

For two images side by side:

> \articlefiguretwo{*image #1 file name*}{*image #2 file name*}{*reference label*}{*caption*}

For three images side by side:

> \articlefigurethree{*image #1 file name*}{*image #2 file name*}{*image #3 file name*}
> {*reference label*}{*caption*}

For four images in a 2 × 2 square:

> \articlefigurefour{*image #1 file name*}{*image #2 file name*}{*image #3 file name*}
> {*image #4 file name*}{*reference label*}{*caption*}

For one image in landscape format on a single page:

\articlelandscapefigure{*image file path and image file name*}{*reference label*}{*caption*}

For two images side by side in landscape format on a single page:

\articlelandscapefiguretwo{*image #1 file name*}{*image #2 file name*}
{*reference label*}{*caption*}

5.10.2. Placing Figures Using LATEX Image Commands

To place a figure in the text, invoke the `figure` environment with the command

```
\begin{figure}[!ht]
```

`[!ht]` ensures that the figure is placed either close to where you call it or that it goes to the top of the page. The use of `[!ht]` helps to scale figures properly and enable text to be included on the page, rather than having the figure alone and oversized on the page. A caption can be included within the `figure` environment using the command

\caption{*caption text*}

As with all `\begin{}`-type commands, you must remember to close it with

```
\end{figure}
```

ASP style supports three basic tools for inserting figures, depending on the complexity of the task:

- `\plotone{`*filename*`}`, which plots a single image;

- `\plottwo{`*filename1*`}{`*filename2*`}`, which plots two figures side by side; and

- `\plotfiddle{`*file*`}{`*vsize*`}{`*rot*`}{`*hsf*`}{`*vsf*`}{`*htrans*`}{`*vtrans*`}`, which allows you to "fiddle" the illustration into position.

If possible, use `\plotone` or `\plottwo` for simplicity and to avoid editorial complications later. If `\plotfiddle` is needed for exact placement of a figure, the arguments of `\plotfiddle{`*file*`}{`*vsize*`}{`*rot*`}{`*hsf*`}{`*vsf*`}{`*htrans*`}{`*vtrans*`}` are as follows:

vsize	vertical white space to allow for plot, any valid LATEX dimension
rot	rotation angle, in degrees, counter-clockwise
hsf	horizontal scale factor, percent
vsf	vertical scale factor, percent
htrans	horizontal translation, in points (in printer's jargon there are 72 points to the inch)
vtrans	vertical translation, in points

A word or two on manipulating the `\plotfiddle` command might be in order. The `vsize` parameter sets the vertical height of the space for the illustration. The origin of this space is center page (*X*-axis) and at the bottom of the space (*Y*-axis). As the name of the command suggests, it's all a question of fiddling with the parameters to get the right placement of the illustration(s). It is useful to get an initial approximate idea of how the illustration(s) will look, so it is a good idea to begin with the following set of initial parameter values:

```
\plotfiddle{filename}{8cm}{0}{50}{50}{-200}{200}
```

After this, it is then just a question of "fiddling" with the individual parameters until you have the figure exactly where you want it on the page. It is useful to start with a set of initial values for `vsize`, `hsf`, `vsf`, `htrans`, and `vtrans`.

In ASP style, the figure captions must appear below the figures. Also, please note that the caption will be centered under the pair of graphics when `\plottwo` is used. It is not possible to caption the two plots individually with this package (neither is it ASP style to do so).

As with tables, figures will automatically be identified with arabic numerals, e.g., 'Figure 1.'

5.11.   The `graphicx` Package

Given our authors' widely varying degrees of familiarity with LATEX we feel that the `\plotone`, `\plottwo`, and `\plotfiddle` commands will serve most purposes. However, those who are more *au fait* with LATEX might wish to use the `graphicx` package. This package enables the user to wield far greater control over the importation of graphics into a `.tex` file and, apart from the usual sizing and rotational facilities, also enables the user to crop or trim an image as desired (e.g., to get rid of surrounding blank margins). The trimming facility is useful if you need to use only a part of a complete image. For an example of a how to use and manipulate `graphicx`-imported images and the trimming facility, see the document *How to Use the `graphicx` Package* (p. 32).

5.12.   Size of Illustrations

The maximum width of an illustration is 13.4 cm (5.25 in) so that it will fit within the width of the text area. Of course, an illustration may be smaller if appropriate. A large illustration may be placed sideways ("landscape") on the paper if necessary. This is done using the same procedure as for landscaped tables; i.e., `\begin{figure}` must be *preceded* by `\begin{landscape}` and `\end{figure}` must be *followed* by `\end{landscape}`.

References

Bland-Hawthorn, J., & Jones, D. H. 1998a, PASA, 15, 44
— 1998b, SPIE, 3355, 855
Daly, P. W. 2007, Natural Sciences Citations and References (Author–Year and Numerical Schemes), Version 8.1

Goossens, M., Mittelbach, F., & Samarin, A. 1994, The LaTeX Companion (Reading, MA: Addison–Wesley)

Jones, D. H., & Bland-Hawthorn, J. 1998, PASP, 110, 1059

— 1999, in Looking Deep in the Southern Sky, edited by R. Morganti, & W. J. Couch (Berlin: Springer), 320

Knuth, D. 1986, The TeXbook (Reading, Mass.: Addison–Wesley)

Kopka, H., & Daly, P. W. 1999, A Guide to LaTeX (Harlow: Addison–Wesley), 3rd ed.

Lamport, L. 1994, LaTeX, A Document Preparation System: User's Guide and Reference Manual (Boston: Addison–Wesley), 2nd ed.

Mahoney, T. J. 2002, in Astronomy for Developing Countries, edited by A. H. Batten (San Francisco: IAU), Special Session of the XXIV General Assembly of the IAU, 357

Markey, N. 2005, Tame the BeaST: The B to X of BibTeX, Version 1.3

Merriam-Webster, I. 2003, Merriam-Webster's Collegiate Dictionary (Springfield: Merriam-Webster), 11th ed.

University of Chicago Press 2003, The Chicago Manual of Style (Chicago: UCP), 15th ed.

van de Hulst, H. C. 1981, Light Scattering by Small Particles (New York: Dover), 2nd ed.